

UNITED STATES DISTRICT COURT  
DISTRICT OF MASSACHUSETTS

1/9/15

**FILED UNDER SEAL**

UNITED STATES OF AMERICA	)	
	)	
v.	)	CRIMINAL NO. 13-10200-GAO
	)	
DZHOKHAR TSARNAEV	)	

**REPLY TO THE GOVERNMENT’S OPPOSITION [DE 904] TO DEFENDANT’S  
MOTION TO EXCLUDE OPINION TESTIMONY CONCERNING  
POLYMER, TAPES, AND FIBER MATCHING [DE 818]**

Apparently recognizing that a same-source match is scientifically unsupportable, the government’s principal argument is that it is *not* seeking to elicit testimony that the detritus found on Boylston Street came from sources found at 410 Norfolk but only that the evidence “could have” come from those sources. Government’s Opposition to Defendant’s Motion to Exclude Opinion Testimony Concerning Polymer, Tapes, and Fiber Matching [DE 904] (“Gov’t Opp.”) at 1-2. Even if a “could have” hypothesis is methodologically supportable — it is not — the government’s presentation of the testimony with the obvious hope that the jury will jump to the conclusion that science cannot support is precisely the kind of mischief prohibited by *Daubert*, Rule 702, and Rule 403. The Court must therefore exclude the evidence.<sup>1</sup>

<sup>1</sup> The government’s opposition suggests that Ms. Mehlretter and Mr. Friedman “will explain the bombs’ architecture and help the jury visualize one of the bombs’ deadliest components — the inner adhesion “sleeve” of shrapnel (i.e. small nails, bb’s, and other small sharp objects).” Gov’t Opp. at 2. The government did not notice this “architecture” aspect as the subject of Ms. Mehlretter’s and Mr. Friedman’s testimony. The defendant separately objects to any testimony that goes beyond the government’s September 2,

**A. THE OPINION MUST BE EXCLUDED BECAUSE IT LACKS  
SUPPORT BY A VALIDATED METHODOLOGY.**

The government appears to argue that even though Ms. Mehlretter and Mr. Friedman cannot testify to a match of the Boylston Street detritus to the sources, they nevertheless can be permitted to state that specimens from the scene *could* have come from the sources at 410 Norfolk Street. Gov't Opp. at 2. According to the government, generalizing the opinion to permit the analysts to say that an item "could have come" and thus leaving out the specific-source attribution makes the testimony admissible. Gov't Opp. at 4. Setting aside for a moment the issue of whether the government's cognitively dissonant position inevitably will confuse and mislead the jury, *see infra Part B*, the distinction is meaningless for purposes of *Daubert* and Rule 702 admissibility. As discussed in defendant's Motion to Exclude at 8-19, the flaw in any opinion testimony regarding source attribution is that the conclusions, whether they are source-specific or "could have" attributions, are not scientifically supportable because the methods lack appropriate validation. Nothing in the government's response changes that immutable fact.

The government points to the NAS 2009 Report for support of its position that the methods used by Ms. Mehlretter and Mr. Friedman are "time-tested" and "reliable." Gov't Opp. at 4. The government is incorrect. In regard to fiber analysis testimony, the NAS 2009 Report concluded that the field has

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2014 notice. Defendant submits that the possibility the government may elicit testimony beyond what it has noticed further demonstrates that an evidentiary hearing in advance of any proposed testimony is necessary.

produced guidelines, but *no set standards*, for the number and quality of characteristics that must correspond in order to conclude that two fibers came from the same manufacturing batch. There have been no studies of fibers (*e.g.*, the variability of their characteristics during and after manufacturing) on which to base such a threshold. Similarly, there have been no studies to inform judgments about whether environmentally related changes discerned in particular fibers are distinctive enough to reliably individualize their source, and there have been no studies that characterize either reliability or error rates in the procedures. Thus, a “match” means only that the fibers could have come from the same type of garment, carpet, or furniture; it can provide only class evidence.

*Id.* at 162-163 (emphasis added). The NAS 2009 Report goes on to reveal the fundamental flaw in the field, and therefore the downfall of the government’s argument for admission:

Because the analysis of fibers is made largely through well-characterized methods of chemistry, it would be possible in principle to develop an understanding of the uncertainties associated with those analyses. However, to date, *that has not been done*.

*Id.* at 163 (emphasis added). NAS criticism of the polymer sub-field of paint comparison (a sub-field studied in greater depth than the nascent tapes and silicones subfields at issue here) are similarly pointed, noting that “the [paint comparison] community *has not defined precise criteria for determining whether two samples come from a common source class*.” *Id.* at 170 (emphasis added).

These deficiencies are critical. In its effort to correct lapses in forensic practices, the NAS 2009 Report made clear that precise criteria, identification of error rates, and the limits uncertainty play in conclusions are the hallmarks of scientific method and should be the bedrock of forensic testimony. *See id.* at 112-121 (discussing validation, identification of error rate, and uncertainty limits as “fundamental principles of the

scientific method”). The polymer and fiber fields lack the kind of indicia identified as crucial by the NAS 2009 Report, and it does not matter whether the testimony is to be source-specific attribution or “could have” testimony. The testimony is scientifically unsupportable and cannot be admitted. *See Daubert*, 509 U.S. at 590 n. 9 (evidentiary reliability will be based on scientific concepts of validity, *i.e.*, “does the principle support what it purports to show?”)

The government’s claim that courts nevertheless have “repeatedly” rejected reliability challenges to “could have” analysis does not survive serious scrutiny. As noted in the defendant’s Motion to Exclude, the court in *United States v. Zajac*, 749 F.Supp.2d 1299 (D. Utah 2010), did not consider evidence of the lack of method validation for source-specific attribution that is required by the NAS, ISO 17025, and the FBI itself. *See* Motion to Exclude [DE 818] at 20. This Court has the evidence that the *Zajac* court did not. *See* Motion to Exclude, Exhibits A-N. Those materials show that whether an analyst reliably conducted instrumental tests is not, as the *Zajac* court incorrectly concluded, the end of the inquiry. *Zajac*, 749 F.Supp.2d at 1306. The unpublished decision in *United States v. Barnes*, 481 Fed.Appx. 505 (11th Cir. 2012), addressed only the challenge of whether *Daubert* requires quantification of results as a precondition to admissibility, an argument the defendant does not make here. *See id.* at 511 (*citing United States v. Frazier*, 387 F.3d 1244, 1265-66 (11th Cir. 2004)(affirming exclusion of ambiguous “expectation” opinion)). *Barnes* makes no mention (let alone analysis) of *Daubert* or Rule 702, and of course did not have the benefit of the NAS



2009 Report. The ruling in *People v. Holmes*, 12 CR 1522 (Colo. Dist. Ct. March 10, 2014) did not address source-attribution methodology at all, apparently because Ms. Mehlretter's proposed testimony in that case will be limited to chemical composition of materials rather than a source matching opinion. See Order on Defendant's Motion to Prelude Expert Opinion Testimony (D-109) (attached hereto as Exhibit A) at 29-30, 35.<sup>2</sup>

The last case cited by the government, *United States v. Santiago-Santiago*, 156 F.Supp.2d 145, 152 (D.P.R. 2001), is particularly unpersuasive and of no support to the government's position here because it did not consider the admissibility fiber analysis except as *dicta* in a rhetorical flourish connected to hair analysis. See *id.* *Santiago-Santiago* is, however, a cautionary tale. The *Santiago-Santiago* court admitted hair analysis evidence because, it said, "the principles and procedures underlying hair [] evidence 'are overwhelmingly accepted and reliable' . . . [and] the cases in which courts have excluded hair evidence are so rare that they have literally amounted to only a handful of precedents." *Id.* at 152. The FBI, however, has since acknowledged that hair analysis testimony of the type admitted in 2001 was scientifically unsupportable. See *Innocence Project and NACDL Announce Historic Partnership with the FBI and Department of Justice on Microscopic Hair Analysis Case* (attached hereto as Exhibit B). Sadly, the willingness of courts like *Santiago-Santiago* to countenance admission of

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<sup>2</sup> Notably, the judge in *Holmes* determined an evidentiary hearing was warranted, even where Ms. Mehlretter's opinion testimony was of far more limited scope than that proposed here. See Order on Defendant's Motion to Prelude Expert Opinion Testimony at 8-9. The *Holmes* decision supports the defendant's position that, should the government persist in its desire to present Ms. Mehlretter's and Mr. Friedman's testimony, an evidentiary hearing is required.

scientific evidence on the basis of widespread acceptance now means that thousands of convictions must be reexamined. Admission of the scientifically unsupportable polymer, tape and fiber opinion testimony here, simply because other courts have done so, risks the same pitfalls.

In short, the government's recitation of the *Daubert* factors and suggestion of widespread admission fall flat because, at the end of the day, there is no validated scientific methodology that can support an opinion that is reliable and helpful to the jury. The opinion testimony must be excluded.

**B. THE OPINION TESTIMONY THAT ITEMS FOUND AT 410 NORFOLK "COULD HAVE" COME FROM THE SAME SOURCE IS OF LITTLE PROBATIVE VALUE, WILL CONFUSE AND MISLEAD THE JURY, IS A WASTE OF TIME, AND WILL UNDULY PREJUDICE THE DEFENDANT.**

The government contends that having Ms. Mehlretter and Mr. Friedman testify only that the detritus "could have" come from sources at 410 Norfolk Street, rather than the more specific (and scientifically unsupportable) "originated from," as Ms. Mehlretter originally concluded, satisfies *Daubert* admissibility standards. But reducing the opinion to a higher level of generality begs the question of whether the generalized opinion is probative of a material fact so as to warrant admission at trial. *See* Fed. R. Evid. 401. The government certainly appears to have its doubts as to the probative value of the physical scientists' opinions: FBI Special Agent John Walker has recently testified that to this day the FBI does not have a "firm determination" as to where the bombs used in the Boston Marathon bombing were made. *United States v. Robel*

*Phillipos*, Testimony of FBI Special Agent John Walker (October 7, 2014) (attached hereto as Exhibit C) at 24. The government's apparent doubts and reluctance to embrace the physical scientists' opinions are well-founded. An opinion that the detritus "could have" come from sources at 410 Norfolk necessarily means that it "could have" come from an unknowably wide number of other sources and locations having nothing to do with 410 Norfolk Street. The higher level of generality renders the opinion meaningless as an evidentiary matter and it should therefore be excluded pursuant to Fed. R. Evid. 401.

In any event, the government's suggestion that it can evade *Daubert's* requirement of scientifically grounded methodology so long as Ms. Mehlretter and Mr. Friedman testify at a high enough level of generality about their conclusions is designed to mislead, and thus runs afoul of Rule 403. Make no mistake: the government seeks to have Ms. Mehlretter and Mr. Friedman give purportedly scientific testimony precisely so that the jury will infer a source-attributed match and conclude the pressure cooker bombs were manufactured at 410 Norfolk Street, a conclusion that reliable scientific methodology does not support. The government thus intends to gloss the scientifically meaningless opinion that the detritus "could be" sourced to items found at 410 Norfolk Street with the patina of two physical sciences in the hope that the jury misuses it to draw the unsupportable conclusion. *See Daubert*, 509 U.S. at 595 ("Expert evidence can be both powerful and quite misleading because of the difficulty in evaluating it.") (citation omitted). *See also Green*, 405 F.Supp.2d at 117 (noting the high risk of undue

credence that can attach to physical scientist testimony). The government should not be allowed to do this. *See Daubert*, 509 U.S. at 595 (risk of misleading testimony particularly acute in expert testimony and thus requires careful prejudice/probative balancing before admission).

Finally, any slight probative will be vanishingly small when considered in the context of the overall trial. The government will present substantial evidence independent of the place of manufacture to inculcate Tamerlan Tsarnaev in constructing the bombs and defendant in possessing one of the constructed bombs. Consequently, the opinion testimony that the detritus “could have” come from sources at 410 Norfolk Street is a waste of time and should be excluded. *See Fed. R. Evid. 403*.

### **CONCLUSION**

For the reasons set forth above and in the defendant’s Motion to Exclude Opinion Testimony Concerning Polymer, Tapes, and Fiber Matching, the proposed expert testimony fails to satisfy *Daubert*, Rule 401, and Rule 702 and must be excluded. In any event, the confusion, consumption of time, and undue prejudice the proposed testimony will bring with it make it inadmissible pursuant to Rule 403. It must therefore be excluded.



Respectfully submitted,

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**CERTIFICATE OF SERVICE**

I, Timothy G. Watkins, hereby certify that copies of this document filed under seal have been served on Assistant U.S. Attorneys William Weinreb, Alope Chakravarty, Nadine Pellegrini and Steven Mellin by email and will be served by hand delivery on January 9, 2015.

  
Timothy G. Watkins